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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,743	07/21/2003	Naoki Minami	NPO0002-02	9137
832	7590	05/05/2004	EXAMINER	
BAKER & DANIELS 111 E. WAYNE STREET SUITE 800 FORT WAYNE, IN 46802			PRICE, CARL D	
			ART UNIT	PAPER NUMBER
			3749	

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/623,743

Applicant(s)

MINAMI, NAOKI

Examiner

CARL D. PRICE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/21/03 (Preliminary Amendment).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 07-21-2003.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

On page 1 of the specification, applicant is required to provide information cross-referencing related applications. See 37 CFR 1.78 and MPEP § 201.11.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims ** and **: rejected under 35 U.S.C. 103(a)

Claims ** and ** are rejected under 35 U.S.C. 103(a) as being unpatentable over ** in view of JP '059 (JP 01-297059) in view of JP' 856 (JP 09-183856) and **.

JP '059 discloses a method for preparing a united flexible exothermic medium (See the attached English language abstract of JP '059) including mixing an exothermic agent (e.g. –

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*“The warm heat sticking agent is obtd. by combining this tacky adhesive agent with the exothermic member”). The method of JP ‘059 further includes mixing one or two water absorptive polymers (e.g. - ... “by properly mixing 1 or ≥2 kinds of the water absorptive polymers introduced with a light crosslinking bond. ..) and a water-absorptive polymer to form a mixture. The purpose of the JP ‘059 method is to “To obtain a warm heat sticking agent and exothermic member tacky adhesive agent which have excellent thermal conductive and tacky adhesive characteristics, **absorbs secretions such as sweat** and are stable to heat by using a tacky adhesive agent consisting of an A-B-A type block copolymer, alicyclic petroleum resin, softener, and a water absorptive high polymer.*

The method of JP ‘059 however does not disclose 1) mixing an alcohol selected from the group consisting of ethanol, isopropyl alcohol, ethylene glycol, propylene glycol and glycerin with the exothermic material/water absorbing polymer(s) mixture to form a second mixture, and 2) subjecting the second mixture to pressure of 100-8000 kg/cm². JP’ 059 also does not disclose including the step of molding the medium in the shape of a flat layer with two main surfaces, and disposing an adhesive layer on one of he surfaces.

JP ‘856 teaches, from the same flexible sheet forming water-absorptive polymer field of endeavor as JP ‘059, mixing a cross linking agent, for example, from the group of ethylene glycol, diethylene glycol, propylene glycol, triethylene glycol, polypropylene glycol, glycerol, polyglycerin, etc. with a water absorptive polymer(s) and further applying pressure and heat from a roller to forma thin flexible sheet from the mixture. JP ‘856 applies to the polymer(s)

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alcohol mixture a pressure of 350 gf/cm². JP '856 further discloses forming a sheet-like absorptivity ingredient with the polymer mixture located between two sheets of material. The absorptivity of the JP '856 material can be obtained by decreasing moisture or pressurizing the mixture.

Applicant's attention is directed to the following text is taken from the attached computer/machine generated English language translation of JP '856 (JP 09-183856):

0023] This invention is explained in detail below. The absorptivity ingredient concerning this invention is characterized by including the absorptivity resin (for example, hydrophilic cross-linked-polymer particle) swollen so that it may have the structure of cross linkage which was able to be distorted and may have an anisotropy by water absorption (different direction swelling). This absorptivity ingredient can be obtained by decreasing moisture, pressurizing the water gel of for example, the hydrophilic cross linked polymer. ...

"0025] The water gel of the above-mentioned hydrophilic cross linked polymer can be easily obtained by carrying out the polymerization reaction of the monomer component containing an ethylenic unsaturated monomer, using an aqueous solvent as a solvent. In addition, although water is more desirable as an aqueous solvent, it is not limited especially. Moreover, especially the method of obtaining the water gel of the hydrophilic cross linked polymer is not limited.

[0026] The above-mentioned ethylenic unsaturated monomer has the desirable compound which has water solubility. ... The monomer which has the hydrophilic group of the Nonion nature, such as polyethylene-glycol monochrome (meta) acrylate; ... or these fourth class salt; is mentioned. These ethylenic unsaturated monomers may be used independently, and may mix two or more kinds suitably, and may be used.

[0027] And if the various absorption properties with which the absorptivity ingredient concerning this invention should be equipped are taken into consideration The acrylic acid (meta) among the ethylenic unsaturated monomers of the above-mentioned ... and the fourth class salt of its -- since -- at least one or more kinds of compounds chosen from the becoming group are more desirable, and at least one or more kinds of compounds containing an acrylic acid (meta) (salt) are still more desirable. ...

[0029] Moreover, the monomer component may contain an ethylenic unsaturated monomer and other monomers (a copolymer is called hereafter) which can be copolymerized in extent which does not check substantially the hydrophilic property of the hydrophilic cross linked polymer obtained. Specifically as the above-mentioned copolymer, hydrophobic monomers [, such as acrylic ester (meta); vinyl acetate, such as methyl (meta) acrylate, ethyl (meta) acrylate, and butyl (meta) acrylate, and propionic-acid vinyl,]; etc. is mentioned. These copolymers may be used independently, and may mix two or more kinds suitably, and may be used.

[0055] Moreover, in case the above-mentioned water gel is pressurized, surface bridge formation (secondary bridge formation) may be further introduced into the hydrophilic cross linked polymer by adding a surface cross linking agent. The well-known surface cross linking agent generally used for this application can be used for the above-mentioned surface cross linking agent that what is necessary is just functional groups, such as a carboxyl group which has two or more reactant radicals and the hydrophilic cross linked polymer has, and the compound which reacts.

[0056] As the above-mentioned surface cross linking agent, specifically For example, ethylene glycol, A diethylene glycol, propylene glycol, triethylene glycol, ... A polypropylene glycol, a glycerol, polyglycerin, ...

[0106] The absorptivity article concerning this invention has come to contain the absorptivity ingredient of the above-mentioned configuration. That is, an absorptivity ingredient is itself or let it be an absorptivity article by combining with other raw materials. Although it is not limited, when offering an absorptivity article as hygienic goods, such as for example, a paper diaper, and a sanitary napkin, an incontinence pad, the configuration which comes to pinch the configuration which it comes to pinch with the sheet which has liquid permeability for the absorptivity ingredient of the shape of a sheet of the above-mentioned configuration, and the sheet which has non-liquid permeability, or a sheet-like absorptivity ingredient with the sheet of two sheets which has liquid permeability is suitable for especially the configuration of this absorptivity article....

[0156] Next, the application-of-pressure machine of a heating mold is used for the sheet mixture of the above, and it is temperature. It pressurized for 5 minutes on condition that 150 degrees C and pressure 350 gf/cm². This obtained the transparent sheet-like moldings with a thickness of about 1mm. Subsequently, the sheet-like absorptivity ingredient was obtained by adding water to this sheet-like moldings, so that it may become 17.0 % of the weight of water content. The measurement result of this absorptivity ingredient was indicated according to a table 3.

In regard to claims 10-18, for the purpose of providing suitable crosslinking agent, it would have been obvious to a person having ordinary skill in the art to modify the method of JP '059 to include an alcohol, selected from the group consisting of ethanol, isopropyl alcohol, ethylene glycol, propylene glycol and glycerin, with the exothermic material/water absorbing polymer(s) mixture to form a second mixture, in view of the teaching of JP '856. Also, for the purpose of shaping the material produced in a useful article, it would have been obvious to a person having ordinary skill in the art to further subjecting the polymer(s) alcohol mixture to pressure of 100-8000 kg/cm² and to forming the polymer(s) mixture between two sheets of

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material, in view of the teaching of JP '856. In regard to claim 18, in particular, Official Notice is taken that it is known to apply adhesive layers to the surface to articles as a means to secure the article on a support surface. Therefore, in view of that which is well known, for the purpose of securing the article formed by the combination of teachings of JP '059 and JP '856 on a support surface, it would have been obvious to a person having ordinary skill in the art to apply an adhesive to one of the external sheets thereof.

Conclusion

See the attached PTO FORM 892 for prior art made of record and not relied upon and which are considered pertinent to applicant's disclosure.

See, for example, **Murakami et al** (U.S. Patent No.- 4,418,163) which discloses (column 3, line 15):

“The water absorbing composite of this invention can be prepared by **mixing an inorganic powder** into a solution containing a hydrophilic polymer and a crosslinking agent which insolubilizes the polymer and converts it to a highly absorbent resin, and drying and heat treating the mixture.

And (column 5, line 19):

The product obtained by reacting the polymer with the basic substance is, then, subjected to a crosslinking reaction by a polyamine. It is possible to use any other **crosslinking agent**, such as a polyepoxy compound, a urea resin, a melamine resin, a **polyhydric alcohol**, amino-alcohol, a polyisocyanate or a polyhalohydrin. ...

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See also, for example, **Cowsar et al** (U.S. Patent No.- 4,064,086) which discloses (column 10, line 64):

53) Depending upon the reactants used and the molecular weights of the products, the polyamides may range from liquids or soft tacky solids to strong rubbers or hard plastics. The polyamides are useful as coatings, adhesives, binders, sealants, gaskets, encapsulating resins, films, fibers, tubing and molded articles. They are converted into hydrogels upon contact with water.

See also **JP '461** (JP 56-149461)(English language abstract):

Resin moulding is produced by adding (1) powder hydrophilic resin which is powdery at ordinary temp. and melts at elevated temp. or dissolves in swelling agent and (2) swelling agent for components (1) and (4), and opt. (3) crosslinking agent (1), to (4) powdery highly water-absorbent resin, **press-moulding the mixt. and then heating the moulding or hot press-moulding the mixt.**

Pref. (4) includes powdery resin obtd. by reacting cyclic acid anhydride with PVA and then introducing carboxyl gp. and simultaneously diester-crosslinking and the powdery resin prepd. by graft-polymerising unsatd. monomer onto starch, etc. Pref. (4) have grain dia. 10-200 mesh and absorb water in an amt. several to several hundred times its own wt. Pref. (1) includes PVA, polyhydroxy methacrylate and polypropylene oxide. **The mixt. is pref. moulded at 50-200 deg.C. under 10-200 kg/sq.cm.**

See also, for example, **JP '116** (JP 59-147076)(English language abstract):

New exothermic cpds. consist of (1) 100 pts.wt. exothermically oxidisable cpds. (e.g. **Fe, Al, Mg, Zn, Cu, Ni, Th, and Ba**), (2) 10-300 pts.wt. of water contg. gel obtd. by crosslinking the mixt. of water soluble polymer (e.g. gelatin, agar, CMC, starch, maleic acid anhydride type copolymers consisting of polyacrylic acid and maleic acid anhydride, PVA, polyalkyleneoxide), crosslinking agent (e.g. polyhydric isocyanate cpds., borax, and boron cpds. for carboxyl contg. polymer), and oxidn. accelerator (e.g. NaCl, CaCl₂, MgCl₂, KI, CaI₂, MgI₂, MgS₂O₃, and Na₂S₂O₃), and (3) 3-100 pts.wt. oxidn. assistant (e.g. active carbon).

USE/ADVANTAGE - New exothermic cpds. produce heat in the presence of **water and air (acid)**. New exothermic cpds. are used for e.g. disposable hand warmers, and **hot-plates**. By using **block-like water contg. gel**, new exothermic cpd. can be used as heat source for insecticide generator, and fragrance generator.

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USPTO CUSTOMER CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **CARL D. PRICE** whose telephone number is **703-308-1953**. The examiner can normally be reached on Monday through Friday between **6:30am-3:00pm**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on **703-308-1935**. The fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (**PAIR**) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see **<http://pair-direct.uspto.gov>**. Should you have questions on access to the Private PAIR system, contact the **Electronic Business Center (EBC)** at **866-217-9197 (toll-free)**.



CARL D. PRICE
Primary Examiner
Art Unit 3749

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